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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,154	03/11/2005	Tatsuo Akai	0020-5309PUS1	9169
2292 7590 05/26/2009 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER				
HWU, JUNE				
ART UNIT		PAPER NUMBER		
1661				
NOTIFICATION DATE		DELIVERY MODE		
05/26/2009		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

### Office Action Summary

**Application No.**

10/511,154

**Applicant(s)**

AKAI ET AL

**Examiner**

JUNE HWU

**Art Unit**

1661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 March 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3,5-7,9-15,17 and 19-24 is/are pending in the application.
- 4a) Of the above claim(s) 1,2,9-15 and 21-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3, 5-7, 17, 19-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 2, 2009 has been entered.

### ***Status of the Claims***

Claims 4, 8, 16 and 18 are cancelled; claims 1-2, 9-15 and 21-24 are withdrawn; claims 3, 5-7, 17, and 19-20 will be examined on the merits.

The rejection under 35 USC 103(a) as being unpatentable over Akai (U.S. Patent No. 6,314,678) in view of Harrison et al (WO 00/63400) is withdrawn due to Applicants' amendment of the claims.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3, 5-7, 17, 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akai et al (JP200230596 A see English translation) in view of Harrison et al (WO 00/63400).

The claims are drawn to an system for transforming plants comprising a plurality of microporous bodies, each of the microporous bodies having a surface on which a single plant seed is germinated and grown into a plant body, each single plant seeds having one of a cylindrical shape, a pillar shape, a barrel shape having a bottom, a pillar shape having a honeycomb cross section, or a barrel shape having a polygonal cross section; and a holding means for removably holding the plurality of microporous bodies, wherein each single plant seeds is germinated and grown on a respective microporous bodies by absorbing from the surface of the microporous body an aqueous nutrition which is retained in communicating pores in the microporous body held by the holding means making no contact with any other plurality of microporous bodies and are transformed by immersing them in a carrier solution.

Akai et al teach a cultivating system for plants comprising a water-circulating feeding mechanism. The system comprises a water supply part material 4 connected to a water source, a plurality of holders 8 and 11, which are removable and set into the cylindrical planting part materials 14 and 20 composed of a microporous body having a water-absorbing function, which are removable ([0018] Figs. 1 and 2). The planting part material consists of the microporous body that absorbs water in the water supply part material 4 [0038]. The microporous bodies 14 and 20 are held by the water supply part material 4 (holding means) which makes no contact with any other microporous bodies ([0020 and Fig. 1). It is noted that Fig. 1 shows a plurality of microporous bodies. The water absorbing string 25 (aqueous nutrition-supply means) is consists of polyvinyl alcohol that absorbs water in the water supply part material 4 ([0028] and Figs. 3 and 4). The water supply part material 4 is connected to the connection tube 7 which is connected to the water level supply apparatus 2 (storage tank) ([0018], [0020] and drawing 1).

The water supply part material 4 has two or more guttering part materials 5 which is connected to the side guttering part material 6 which is connected by the connection pipe 7 which is connected to the water level supply apparatus 2 ([0020] and Figs. 1 and 2).

Akai et al do not teach the transformation of a plant by immersing the plant in a carrier solution.

Harrison et al teach that direct gene transformation of a plant by vernalizing and germinating seed to form a plant and contacting the part of the plant with *Agrobacterium* (p. 8, lines 3-7) of dicots and monocots (p. 12, lines 26-27). The seeds are planted in a medium capable of supporting growth (p.15, lines 8-9). Any plant growth medium capable of supporting the infiltration process and the *Agrobacterium* within the plant can be used for vacuum infiltration (p. 16, lines 16-18). Then *Agrobacterium* suspension in the infiltration medium is added to a container large enough to immerse the above ground of the plant in the *Agrobacterium* suspension (p. 16, lines 22-29). The plant is vacuumed at about 28 mmHg for about three minutes (p. 17, lines 3-5). After vacuum infiltration the plant is placed in a growth chamber for about a week and the vacuum infiltration is repeated (p. 17, lines 8-19). Then the treated plant is allowed to set seed (p. 17, lines 23-24).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the system of cultivating plants as taught by Akai with the plant transformation method as taught by Harrison because Harrison taught that plant transformation is a way of producing new genetic material for crop improvement (p. 1 lines 6-9). One of ordinary skill in the art would have been motivated to use the transformation method as taught by Harrison because of the ease in immersing the plant part with *Agrobacterium*. Moreover, Akai noted that the planting part materials 14 and 20 may be taken out from the holders 8 and 11 for other purpose, which could be for immersing the plant for transformation ([0041]. Furthermore, one of

ordinary skill in the art would have a reasonable expectation of success in the combination of transformation of a plant cultivation system as taught by Akai in view of Harrison because the plant cultivation system is known in the art and plant transformation is also known in the art and would be a choice of experimental design and is considered within the purview of the cited prior art.

Although Akai does not specifically teach an aqueous nutrition is stored in the holding means, one of skilled in the art would be motivated to add nutrients in the water level feed 2 to further promote the growth of the plant.

Although Akai does not specifically teach a single plant seed is germinated and grown on the microporous body, one skilled in the art would be motivated to plant a single seed as Akai does mention that a cutting may be placed in the holder [0029].

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had reasonable expectation of success in producing the claimed invention. Thus, the invention as a whole was clearly *prima facie* obvious to one of ordinary skill in the art at the time the invention was made as evidenced by the cited references.

### ***Conclusion***

No claims are allowed.

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to June Hwu whose telephone number is (571) 272-0977. The Examiner can normally be reached Monday through Thursday from 6:00 a.m. to 4:30 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Anne Marie Grunberg, can be reached on (571) 272-0975. The fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/June Hwu/

Examiner, Art Unit 1661